

11 March 2021

## **Australian Federal Government Launches Resources Technology & Critical Minerals Processing National Manufacturing Roadmap**

### **Studies and Test Work Results at Sunrise for Battery Recycling Plant and Cathode Precursor Production**

MELBOURNE, Australia – Clean TeQ Holdings Limited ('Clean TeQ' or 'Company') (ASX:CLQ; OTCQX:CTEQF) welcomes the recent launch of the Resources Technology & Critical Minerals Processing National Manufacturing Roadmap, a key element of the Australian Federal Government's \$1.5 billion Modern Manufacturing Strategy.

The Roadmap is an initiative to, among other things, leverage Australia's vast endowment of critical mineral resources to capture significant additional value, strengthen Australia's global position in downstream supply chains and underpin a range of advanced manufacturing opportunities.

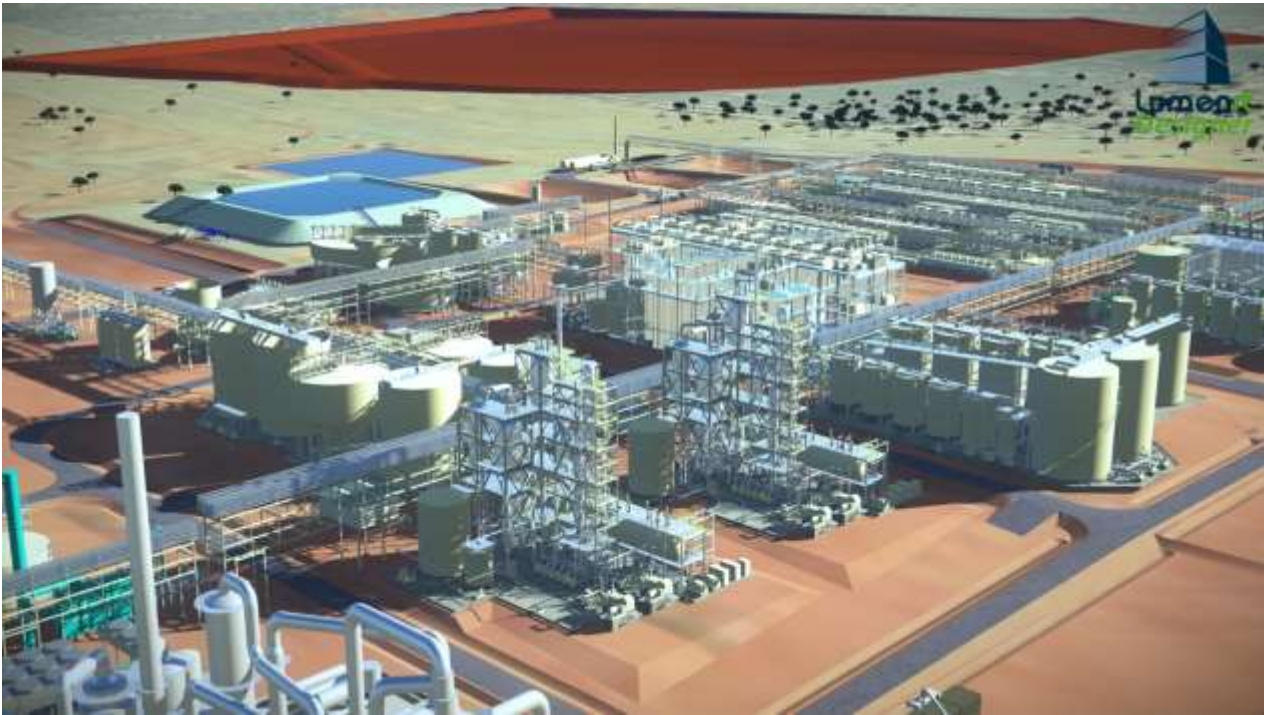
Clean TeQ's Managing Director, Sam Riggall, was a member of the taskforce that guided the development of the Resources Technology & Critical Minerals Processing Roadmap.

*"The Resources Technology & Critical Minerals Processing National Manufacturing Roadmap highlights Australia's unique opportunity to leverage its world-class mineral resources to capitalise on opportunities from decarbonisation of the global economy. Clean TeQ particularly welcomes the government's focus on supporting the growth of technology and value-adding within Australia's resources industry. With our goal to develop the Sunrise Battery Materials Complex to produce high-quality, high-value battery materials as part of the electric vehicle supply chain, Clean TeQ is completely aligned with this important initiative."*

The Modern Manufacturing Initiative is now open for resources technology and critical minerals processing projects that meet eligibility under its Translation and

Integration streams to apply for government funding grants. Further details are available via the following weblink:

<https://www.industry.gov.au/data-and-publications/resources-technology-and-critical-minerals-processing-national-manufacturing-priority-road-map>



Three-Dimensional Model of the Clean TeQ Sunrise Process Plant Facilities

Clean TeQ's wholly owned Sunrise Battery Material Complex in NSW, Australia is positioned to be one of the world's largest fully integrated battery materials producers. Designed to run on 100% renewable power, it will have one of the lowest carbon footprints for battery-grade nickel production in the world.

### **Sunrise Downstream Studies**

To supplement the current Sunrise development plan, Clean TeQ is progressing a range of downstream study programs focused on integrating the Sunrise operation with a battery recycling plant and the capacity to manufacture cathode precursor.

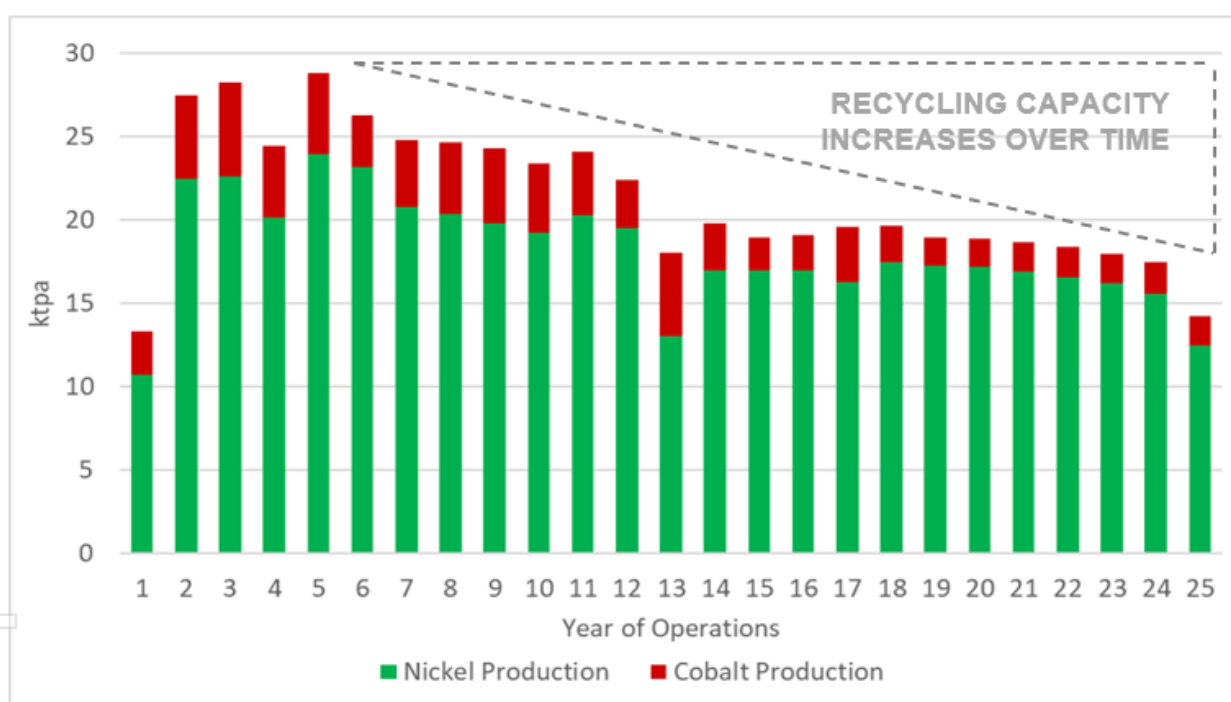
### **Recycling**

With the expected growth in electric vehicle adoption over coming decades, the market for battery recycling is expected to grow significantly. This will be

reinforced by legislation and regulation across regions mandating a minimum recycled metal content in all batteries (a requirement that the EU has already imposed).

Clean TeQ believes that integrated refineries will become an increasingly important source of processing capacity to recycle battery metals. For that reason, the Sunrise refinery is designed to give flexibility to enable potential future treatment of primary, intermediate and secondary (recycled) battery metals. The flow sheet can reject a large range of impurities, and hence has the flexibility to potentially treat different feedstocks in the future.

The Sunrise production forecast (below) illustrates why integrated refineries, with their sunk capital, are well-suited to be a natural location for recycling battery metals. With declines in head grade over the life of an ore body, the capacity of the refinery to handle additional metal units increases with time.



Refined Metal Throughput at Sunrise Refinery 30ktpa

Clean TeQ's recycling test work is focussed on understanding variability in the composition of different feedstocks (black mass and filtrate) across the different cathode and anode chemistries and their impact on recoveries for nickel, cobalt and lithium. Again, Clean TeQ's proprietary ion exchange technologies will play a key role in optimising the recycling stream.

### **Cathode precursor**

Clean TeQ has progressed a number of studies to assess potential opportunities for further downstream processing at the Sunrise Project site including production of EV battery cathode precursor material (PCAM) and cathode active material (CAM)<sup>1</sup>. The objective of these scoping level studies is to demonstrate the suitability, and assess the approximate cost, of processing mixed and standardised nickel and cobalt salts into cathode precursor for the EV battery supply chain.

The Company has produced a batch of PCAM from samples of Sunrise nickel/cobalt sulphate solution. The outcomes of the study estimated that significant PCAM production cost savings were potentially achievable with a modest (~\$200 million) investment in a PCAM manufacturing plant at Sunrise.

The team has also been working with Queensland University of Technology (QUT) on PCAM precipitation and lithium-ion battery fabrication and testing. During the quarter QUT produced a prototype lithium-ion battery NMC622 coin cell from Clean TeQ's PCAM. Preliminary results indicate that the measured capacity on the coin cell was comparable to the performance of commercial NMC622 cells. Characterisation of the PCAM and CAM materials showed that the expected properties were also achieved (Nickel(II) hydroxide crystal structure, particle and aggregate size and shape).

By demonstrating the potential for further downstream processing on site at Sunrise, the Company's aim is to deliver enhanced supply chain integration, minimise processing and transportation costs, as well as providing more efficient and environmentally friendly management of the supply chain's mining/metal processing waste streams.

**For more information, please contact:**

Ben Stockdale, CFO and Investor Relations

+61 3 9797 6700

This announcement is authorised for release to the market by the Board of Directors of Clean TeQ Holdings Limited.

**About Clean TeQ Holdings Limited (ASX:CLQ)** – Based in Melbourne, Australia, Clean TeQ is a global leader in metals recovery and industrial water treatment through the application of its proprietary Clean-iX® continuous ion exchange technology. For more information about Clean TeQ please visit the Company's website [www.cleanteq.com](http://www.cleanteq.com).

<sup>1</sup> Note that these studies are currently at a high-level and conceptual in nature. The Company would require additional HSEC studies and permitting applications to be approved before PCAM or CAM production facilities could be established on site at Sunrise.

**About the Clean TeQ Sunrise Project** – Clean TeQ is the 100% owner of the Clean TeQ Sunrise Project, located in New South Wales. Clean TeQ Sunrise is one of the largest cobalt deposits outside of Africa, and one of the largest and highest-grade accumulations of scandium ever discovered.

**About Clean TeQ Water** – Through its wholly owned subsidiary Clean TeQ Water, Clean TeQ is also providing innovative wastewater treatment solutions for removing hardness, desalination, nutrient removal and zero liquid discharge. The sectors of focus include municipal wastewater, surface water, industrial waste water and mining waste water. For more information about Clean TeQ Water please visit [www.cleanteqwater.com](http://www.cleanteqwater.com).

## FORWARD-LOOKING STATEMENTS

Certain statements in this news release constitute “forward-looking statements” or “forward-looking information” within the meaning of applicable securities laws. Such statements involve known and unknown risks, uncertainties and other factors, which may cause actual results, performance or achievements of the Company or industry results, to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements or information. Such statements can be identified by the use of words such as “may”, “would”, “could”, “will”, “intend”, “expect”, “believe”, “plan”, “anticipate”, “estimate”, “scheduled”, “forecast”, “predict” and other similar terminology, or state that certain actions, events or results “may”, “could”, “would”, “might” or “will” be taken, occur or be achieved. These statements reflect the Company’s current expectations regarding future events, performance and results, and speak only as of the date of this new release.

Statements in this news release that constitute forward-looking statements or information include, but are not limited to, statements regarding: the development and size of the Sunrise Project, the carbon intensity of metals production at Sunrise and other nickel producers, the potential to produce downstream products from Sunrise and the availability and cost of renewable electrical supply for the Sunrise Project.

Readers are cautioned that actual results may vary from those presented. All such forward-looking information and statements are based on certain assumptions and analyses made by Clean TeQ’s management in light of their experience and perception of historical trends, current conditions and expected future developments, as well as other factors management believe are appropriate in the circumstances. These statements, however, are subject to a variety of risks and uncertainties and other factors that could cause actual events or results to differ materially from those projected in the forward-looking information or statements including, but not limited to, unexpected changes in laws, rules or regulations, or their enforcement by applicable authorities; the failure of parties to contracts to perform as agreed; changes in commodity prices; unexpected failure or inadequacy of infrastructure, or delays in the development of infrastructure, and the failure of exploration programs or other studies to deliver anticipated results or results that would justify and support continued studies, development or operations. Other important factors that could cause actual results to differ from these forward-looking statements also include those described under the heading “Risk Factors” in the Company’s most recently filed Annual Information Form available under its profile on SEDAR at [www.sedar.com](http://www.sedar.com).

Readers are cautioned not to place undue reliance on forward-looking information or statements.

Although the forward-looking statements contained in this news release are based upon what management of the Company believes are reasonable assumptions, the Company cannot assure investors that actual results will be consistent with these forward-looking statements. These forward-looking statements are made as of the date of this news release and are expressly qualified in their entirety by this cautionary statement. Subject to applicable securities laws, the Company does not assume any obligation to update or revise the forward-looking statements contained herein to reflect events or circumstances occurring after the date of this news release.